



Smart Faucet

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Introduction

Water-saving is the universal culpability of every human residing on this extraordinary Earth. Water is a rudimental necessity for the functioning of each living organism. This universal solvent is the mere reason due to which implausible life exists on the Earth. Not only this but it makes 71% of the Earth! However, despite this vast abundance, not all of this is consumable. Solely, 3% of freshwater is present, out of which only 1.3% can be consumed and the rest is trapped in glaciers, ice caps, permafrost, etc.

Further, we use water for everything and every time. Whether it is brushing our teeth, bathing, cooking our food to water needed in the industries to produce goods. Moreover, our body itself is made up of 60% of water and it helps our body function properly.

Water is not only needed for viability but also the feeling of contentment among humans. For example, people in Africa are leading miserable lives and are suffering because of a lack of water. It is time for everyone to wake up and realize the urgency of the situation and the earnestness of the problems that we are facing.

As the saying goes "Be the change you want to see in the world." This encouraged and inspired me to innovate a **"Smart Faucet"** that could help mankind and could also contribute to sustainable development.

Aim of the project

This brings us to the aim of the project. The main intention of this project is to conserve water and prevent the wastage of water in our daily lives which tends to happen a lot fortuitously. In this busy world, people are engrossed and exaggerated with work, and therefore small affairs like closing the tap at the right time, brushing teeth with a closed tap, etc often slip our minds. Also, people are so immersed in their work that they can't waste even a single minute and hence can't wait fifteen minutes to let the bucket fill and then close the tap. These minute things are often ignored when they are the root cause of the problem. This irresponsibility leads to the wastage of thousands of gallons of water every day! People are oblivious to the fact that these minor things are actually the real cause of the wastage of water and therefore fail to ponder and get muddled about the solution for this problem. But it is very rightly said that "start from zero and become the hero." Consequently, we should first research about the minor problems and try to solve them before moving on a large scale and trying to solve major obstacles. This is where my project comes in. My project focuses on targeting these small gaffes which people commit very frequently and preventing these things as even when they are very minor mistakes but they can cause a lot of wastage as well as could lead to havocking repercussions.

Methodology

The major objective of the “Smart Faucet” is to halt the prodigal wastage of water which is a very precious element. Moreover, it is present in a very meagre amount and hence we need to use it very judiciously.

Although it consists of an ordinary tap, its function is very peculiar. Its working is quite facile and is not at all intricate.

The Ultrasonic sensor, here, plays as a protagonist and everything depends on the signals given by it. An Ultrasonic sensor will be attached to the tap or faucet and once the electricity is supplied, it will enable the tap to fill the bucket present in the range of the sensor. When the ultrasonic sensor will find the bucket in its range and would determine that the bucket is empty then it will send the signal to the motor driver which in turn would send the signals to the water pump and then the water pump will draw the water into the tap and let it pass through it. The water pump will halt the flow of water once the bucket is filled. The signals from the Ultrasonic sensor will be sent to the motor driver by measuring and comparing the distance with the previous scenario and the motor driver will indicate the water pump to stop drawing the water and that is how the flow of water will be halted.

Outline of the project

The goal of this project is to make people understand the seriousness of the problem of water pollution and wastage that we are facing and how it will affect future generations if not taken care of.

Through this project, I tend to target the minor flaws which everyone commits and often ignore usually due to an exaggerated work schedule. But as technology is developing, we all can invent things which could save our time as well as benefit the environment. My project, **"Smart Faucet"** helps in a reduction in the amount of wastage of clean water coming from the water cleaning tanks. These tanks work from the huge amount of funds given by the government. Although, the funds are necessary but at the same time, people are deliberately wasting this clean water and hence this leads to wastage of funds as well. These funds could be used for many other salient problems that we are facing right now. So, not only this project saves water but also prevents impractical use of funds.

The **"Smart Faucet"** will consist of various necessary components. The components are readily available, feasible as well as when put together will benefit many people. The components are:-

1. Arduino UNO
2. Ultrasonic sensor
3. A tap or a faucet
4. Jumper wires(male to male, male to female)
5. USB cable

6. Motor driver

Budget

Serial number	Component's name	Number of items	Price
1.	Tap	1	Rs. 300
2.	Arduino UNO with a USB cable	1	Rs.450
3.	Ultrasonic sensor	1	Rs.250
4.	Jumper wires	5(of each kind)	Rs.50
5.	Motor driver	1	Rs.238

Total amount: Rs.1288

A regular good company tap's cost starts from Rs.1,000. The "Smart Faucet" proves to be a lot more feasible and it has a fair quality too.

Jaguar Brass Regular (Chrome)

Price: 1,523



Conclusion

It is very precisely said, "A drop of water is worth more than a sack of gold to a thirsty man." Water was, is, and will always be a precious resource for humans as it is the basic necessity for the existence of all living forms. My notion is that the previous generation had done what they needed to do, but now it's our turn to amend the rules and correct the mistakes committed by them so that our upcoming generation doesn't suffer the consequences. Also, adopting such solutions in our daily lives will heed to sustainable developmental goals stated by the UN and this will benefit future generations. So, let's try to be a part of the solution and not a part of the pollution!

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